



SEQUENCE LISTING

<110> MANKIN, LUKE  
MCKERSIE, BRYAN

<120> SELF-EXCISING POLYNUCLEOTIDES AND USES THEREOF

<130> 16313-0055

<140> 09/940,550

<141> 2001-08-27

<150> 60/227,961

<151> 2000-08-25

<160> 12

<170> PatentIn Ver. 2.1

<210> 1

<211> 45

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 1

gatccatg gccatggcac aaggggtgtg gaccggggtg gatac

45

<210> 2

<211> 45

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 2

gtacgtatcc accccggtea caacccttg tgccatggcc atag

45

<210> 3

<211> 30

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Primer

<400> 3

gagcgcgaga atagcagtg agcaagccca

30

COPY OF PAPERS  
ORIGINALLY FILED

<210> 4  
<211> 30  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Primer

<400> 4  
gtcatcaaca agttagcgca ctcgaccact 30

<210> 5  
<211> 30  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Primer

<400> 5  
gaccgcgcgg caggagctta cgacggaccc 30

<210> 6  
<211> 30  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Primer

<400> 6  
ccgccgaagc cccgaagttg ccccttgacc 30

<210> 7  
<211> 35  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Primer

<400> 7  
ttccgcggcc gctacgtaag tttctgcttc tacct 35

<210> 8  
<211> 30  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Primer

<400> 8  
aaacagctgc acatcaacaa attttggtca 30

<210> 9  
 <211> 2031  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: C31int DNA  
 sequence

<400> 9  
 atggcacaag ggggttgtag cgggggtggat acgtaagttt ctgcttctac ctttgatata 60  
 tatataataa ttatcattaa ttagtagtaa tataatat tttcaaaata 120  
 aaagaatgta gtatatagca attgcttttc ttagtattat aagtgtgtat attttaattt 180  
 ataacttttc taatatatga ccaaaatttg ttgatgtgca ggtacgcggg tgcttacgac 240  
 cgtcagtcgc gcgagcgcga gaattcgagc gcagcaagcc cagcgacaca gcgtagcgcc 300  
 aacgaagaca agggggccga ccttcagcgc gaagtcgagc gcgacggggg ccggttcagg 360  
 ttcgtcgggc atttcagcga agcgccgggc acgtcgcgct tcgggacggc ggagcgccc 420  
 gagttcgaac gcacctgaa cgaatgccgc gccggggcggc tcaacatgat cattgtctat 480  
 gacgtgtcgc gcttctcgcg cctgaaggtc atggacgcga ttccgattgt ctcggaattg 540  
 ctgcacctgg gcgtgacgat tgtttccact caggaaggcg tcttcgggca gggaaacgtc 600  
 atggacctga ttacactgat tatgcggctc gacgcgtcgc acaaagaatc ttcgctgaag 660  
 tcggcgaaaga ttctcgacac gaagaacctt cagcgcgaaat tgggcgggta cgtcggcggg 720  
 aaggcgctt acggttcga gcttgtttcg gagacgaagg agatcacgcg caacggccga 780  
 atggtcaatg tcgtcatcaa caagcttgcg cactcgacca ctcccttac cggaccttc 840  
 gagttcgagc ccgacgtaat ccggtggtgg tggcgtgaga tcaagacgca caaacacctt 900  
 cccttcaagc cgggcagtca agccgccatt caccgggca gcacacggg gctttgtaag 960  
 cgcattggag ctgacgccgt gccgacctgg ggcgagacga ttgggaagaa gaccgcttca 1020  
 agcgctggg acccggaac cgttatgcga atcttcggg acccgcgat tgccggcttc 1080  
 gccgctgagg tgatctacaa gaagaagcgc gacggcacgc cgaccacgaa gattgagggt 1140  
 tacggcatte agcgcgaccc gatcacgctc cggccggctg agcttgattg cggaccgatc 1200  
 atcgagcccg ctgagtggtg tgagcttcag gcgtggttgg acggcagggg gcgcggcaag 1260  
 gggctttccc gggggcaagc cattctgtcc gccatggaca agctgtactg cgagtgtggc 1320  
 gccgtcatga cttcgaagcg cggggaagaa tcgatcaagg actcttaccg ctgccgtcgc 1380  
 cggaagggtg tcgacctgct cgcacctggg cagcacgaag gcacgtgcaa cgtcagcatg 1440  
 gcggcactcg acaagtctgt tgcggaacgc atcttcaaca agatcaggca gcgccgaaggc 1500  
 gacgaagaga cgttggcgct tctgtgggaa gccgcccagc gcttcggcaa gctcactgag 1560  
 gcgcttgaga agagcggcga acgggcgaac cttgttgagg agcgcgccga cggcctgaac 1620  
 gcccttgaag agctgtacga agaccgcgcg gcaggcgcgt acgacggacc cgttggcagg 1680  
 aagcacttcc ggaagcaaca ggcagcgtg acgctccggc agcaaggggc ggaagagcgg 1740  
 cttgccgaac ttgaagccgc cgaagccccg aagcttcccc ttgaccaatg gttccccgaa 1800  
 gacggcgagc ctgacctgac cggccctaag tcgtgggtgg ggcgcgcgtc agtagacgac 1860  
 aagcgcggtg tcgtcgggct cttcgtagac aagatcgttg tcacgaagtc gactacgggc 1920  
 agggggcagg gaacgcccac cgagaagcgc gcttcgatca cgtgggagaa gccgcccagc 1980  
 gacgacgacg aagacgacgc ccaggacggc acggaagacg tagcggcgta g 2031

<210> 10  
 <211> 2031  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: C31int\* DNA  
 sequence

<400> 10

```

atggcacaag ggggttgtag cgggggtggat acgtaagttt ctgcttctac ctttgatata 60
tatataataa ttatcattaa ttagtagtaa tataatatatt caaatatttt tttcaaaata 120
aaagaatgta gtatatagca attgcttttc ttagtattat aagtgtgtat attttaattt 180
ataacttttc taatatatga ccaaaatttg ttgatgtgca ggtacgcggg tgcttacgac 240
cgtcagtcgc gcgagcgcga gaatagcagt gcagcaagcc cagcgacaca gcgtagcgcc 300
aacgaagaca aggcggccga ccttcagcgc gaagtcgagc gcgacggggg ccggttcagg 360
ttcgtcgggc atttcagcga agcgcggggc acgtcggcgt tcgggacggc ggagcggccc 420
gagttcgaaac gcatcctgaa cgaatgccgc gccgggcggc tcaacatgat cattgtctat 480
gacgtgtcgc gcttctcgcg cctgaaggte atggacgcga ttccgattgt ctcggaattg 540
ctcgccctgg gcgtgacgat tgtttccact caggaaaggc tcttcgggca gggaaacgtc 600
atggacctga ttcacctgat tatgcggctc gacgcgtcgc acaaagaatc ttcgctgaag 660
tcggcgaaaga ttctcgacac gaagaacctt cagcgcgaaat tgggcgggta cgtcggcggg 720
aaggcgcttc acggcttcga gcttgtttcg gagacgaagg agatcacgcg caacggccga 780
atggtcaatg tcgtcatcaa caagtttagcg cactcgacca ctcccttac cggaccttc 840
gagttcgagc ccgacgtaat ccggtggtgg tggcgtgaga tcaagacgca caaacacctt 900
cccttcaagc cgggcagtcg agccgccatt caccggggca gcatcacggg gctttgtaag 960
cgcattggacg ctgacgcctg gccgaccggg ggcgagacga ttgggaagaa gaccgcttca 1020
agcgccctggg acccggaac cgttatgcga atccttcggg acccgcgat tgcgggcttc 1080
gccgctgagg tgatctacaa gaagaagccg gacggcacgc cgaccacgaa gattgaggg 1140
taccgcattc agcgcgaccc gatcacgctc cggccgggtc agcttgattg cggaccgatc 1200
atcgagcccg ctgagtggtg tgagcttcag gcgtggttgg acggcagggg gcgcggcaag 1260
gggctttccc gggggcaagc cattctgtcc gccatggaca agctgtactg cgagtgtggc 1320
gccgtcatga cttcgaagcg cggggaagaa tcgatcaagg actcttaccg ctgccgtcgc 1380
cggaaggtgg tcgacccgtc cgcacctggg cagcacgaag gcacgtgcaa cgtcagcatg 1440
gcggcactcg acaagtctgt tgcggaacgc atcttcaaca agatcaggca cgcgaaggc 1500
gacgaagaga cgttggcgtc tctgtgggaa gccgcccgcg gcttcggcaa gctcactgag 1560
gcgcctgaga agagcggcga accggcgaac cttgttgagg agcgcgcga cgccctgaac 1620
gcccttgaag agctgtacga agaccgcgcg gcaggagctt acgacggacc cgttggcagg 1680
aagcacttcc ggaagcaaca ggcagcgcgt acgctccggc agcaaggggc ggaagagcgg 1740
cttgccgaac ttgaagccgc cgaagccccg aagttgcccc ttgaccaatg gttccccgaa 1800
gacgccgacg ctgacccgac cggccctaag tcgtggtggg ggcgcgcgtc agtagacgac 1860
aagcgcggtg tcgtcgggct cttcgtagac aagatcggtg tcacgaagtc gactacgggc 1920
agggggcagg gaacggccat cgagaagcgc gcttcgatca cgtgggcgaa gccgcggacc 1980
gacgacgacg aagacgacgc ccaggacggc acggaagacg tagcggcgta g 2031

```

<210> 11

<211> 9901

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: pBPS EW051  
T-DNA region.

<220>

<221> modified\_base

<222> (1984)

<223> a, t, c, g, other or unknown

<220>

<221> modified\_base

<222> (1986)

<223> a, t, c, g, other or unknown

<220>

<221> modified\_base

<222> (5231)  
 <223> a, t, c, g, other or unknown

<220>  
 <221> modified\_base  
 <222> (5233)  
 <223> a, t, c, g, other or unknown

<220>  
 <221> modified\_base  
 <222> (8478)  
 <223> a, t, c, g, other or unknown

<220>  
 <221> modified\_base  
 <222> (8480)  
 <223> a, t, c, g, other or unknown

<400> 11  
 ttggtgatttt gtgcccagact gccggtcggg gagctgttgg ctggctgggtg gcaggatata 60  
 ttgtggtgta aacaaattga cgttagaca acttaataac acattgcgga cgtctttaat 120  
 gtactgaatt aacatccgtt tgatacttgt ctaaaattgg ctgatttcga gtgcatctat 180  
 gcataaaaaa aatctaata caattattac caagcaggat caccgggtgcc agggcgtgcc 240  
 cttgggctcc ccgggcggcg cccgggcaat tcccatcttg aaagaaatat agtttaaata 300  
 tttattgata aaataagtc ggtattatag tccaagcaaa aacataattt attgatgcaa 360  
 agtttaaatt cagaaatatt tcaataactg attatatcag ctggtacatt gccgtagatg 420  
 aaagactgag tgcgatatta tgtgtaatac ataaattgat gatatagcta gcttagctca 480  
 tcggggggatc cttaatcgac tctagctaga acgaattggt aggtggcggg acttgggtcg 540  
 atatcaaagt gcatcacttc ttcccgtatg cccaactttg tatagagagc cactgcggga 600  
 tcgtcacctg aatctgcttg cacgtagatc acataagcac caagcgcgtt ggccctcatgc 660  
 ttgaggagat tgatgagcgc ggtggcaatg cctgcctcc ggtgctcgcc ggagactgcg 720  
 agatcataga tatagatctc actacgcggc tgcctaaaacc tgggcagaaac gtaagccgcg 780  
 agagcgccaa caaccgcttc ttggtcgaag gcagcaagcg cgatgaatgt cttactacgc 840  
 agcaagtccc cgaggtaate ggagtccggc tgatgttggg agtaggtggc tacgtctccg 900  
 aactcacgac cgaagagatc aagagcagcc cgcattggatt tgacttggtc agggccgagc 960  
 ctacatgtgc gaatgatgcc catcctcgag aaacgtttgt aatcgatggc ttctggctgc 1020  
 tccagatata cgggtggttg tgccggttgt gtgctggcaa tcaccttgcc gccacgtacc 1080  
 gaataacgta ccggaacctg acggcgagc gcataaaacc cattttcagc cggcaggata 1140  
 atcagggttg cgctgtttcc ggcggaatg ccgtaactct gcaaatccaa cgtccttgcg 1200  
 ctgtggtggg tgattaaatt caggccatcg ttaatctgcc cgtagcccat caactggcaa 1260  
 acatgcagcc ccatatgcag cacttgagc atattcgccg tcccagcgg ataccacgga 1320  
 tccaagacat catcgtgacc aaagcagacg ttaatgcgg actccagcat ctctttaacg 1380  
 cgcgtgatgc ccgagcgtt tggatacgtg tcgaaacgtc cttgcagatg aatattgacc 1440  
 agcgggttg cgacaaagtt aataccggac attttcagca agcggaaacag gcgtgaggta 1500  
 tacgccccgt tataggagtg cattgcccgt gtgtggctgg cggtgactcg cgcgccccatg 1560  
 ccttcattggt gcgcccaggc agcaacgggt tcgacaaaag cgcactgctc gtcacatgc 1620  
 tcatcacagt gaacgtcgat gagacggctg tatcttttgc ccaggggcgaa ggttttatgc 1680  
 agcgactcca ccgcttatcc acgggttaaat tcaaaatgcg gaatcgcccc cactacatct 1740  
 gcccttaagc gtaacgcctc ttccagcaac gcttcaacct tgggatacga caaaatccct 1800  
 tccctgagga agcgagcgt ttgcagatca atccacggcg cgaacttcctg cttcacttcc 1860  
 agcattgctt tcagcgcagt tagcgttgca tccgaaacat cgacatgggt acgcacatgc 1920  
 tgaatgcctg tggcaatctg ccatttcagc gtttgccatg cgcgttggtt cacatcgta 1980  
 grontndtgg gtttaataacg ctttgcgctc ggcccagcgt tcaatgctt caaacagcgt 2040  
 gccggaactga ttccagttcg gttgtccggc ggtttgcgtg gtgtccaggt gaatatgtgg 2100  
 ctccacaaac ggccgtataa ctaaaccttg ttccgcatcc aggtctgttt cagttatggg 2160  
 catcacgcgc gattgcgcgt caatggcgtt gatttttccg tccctgcagat gaatctgcca 2220  
 cagccctct tcgcttggt acggggcgtt aataattgtt tgtaaaagcgt tattcgacac 2280  
 tgttagcctc cccatggaga tctggattga gagtgaatat gaggactctaa ttggataccg 2340

aggggaattt	atggaagtc	gtggagcatt	tttgacaaga	aatatttgc	agctgatagt	2400
gaccttaggc	gacttttgaa	cgcgcaataa	tggttttctga	cgtatgtgct	tagctcatta	2460
aactccagaa	acccgcggct	gagtggctcc	ttcaacgttg	cggttctgtc	agttccaaac	2520
gtaaaacggc	ttgtcccgcg	tcacggcgcg	gggtcataac	gtgactccct	taattctccg	2580
ctcatgatct	tgatcccctg	cgccatcaga	tccttgccgg	caagaaagcc	atccagttta	2640
ctttgcaggg	cttcccaacc	ttaccagagg	gcgcccagc	tggcaattcc	ggttcgcttg	2700
ctgtccataa	aaccgcccag	tctagctatc	gccatgtaag	cccactgcaa	gctacctgct	2760
ttctctttgc	gcttgcgttt	tccctgtcc	agatagccca	gtagctgaca	ttcatccggg	2820
gtcagcaccg	ttctgcggga	ctggctttct	acgtgttccg	cttcttttag	cagcccttgc	2880
gccctgagtg	cttgccggcag	cgtgaagctt	ggcgcccaa	gcttgcagtc	ccgctcttag	2940
ccgtacaata	ttactaccg	gtgcgatgcc	ccccatcgta	ggtgaagggtg	gaaattaatg	3000
atccatcttg	agaccacagg	cccacaacag	ctaccagttt	cctcaagggt	ccacaaaaaa	3060
cgtaagcgct	tacgtacatg	gtcgataaga	aaaggcaatt	tgtagatggt	aacatccaac	3120
gtcgctttca	gggatccctt	ttaccgacaa	ctcatccaca	ttgatggtag	gcagaaaggt	3180
aaaggattat	cgcaagtcaa	tacttgccca	ttcattgatc	tatttaaagg	tgtggcctca	3240
aggagatccc	cgggcccggc	attcatatgt	ctagattaga	taaaagtaaa	gtgatttaaca	3300
gcgcattaga	gctgcttaat	gaggtcggaa	tcgaagggtt	aacaaccctg	aaactcgccc	3360
agaagctagg	tgtagagcag	cctacattgt	attggcatgt	aaaaaataag	cgggctttgc	3420
tcgacgcctt	agccattgag	atgttagata	ggcaccatac	tcacttttgc	cctttagaag	3480
gggaaaagctg	gcaagatttt	ttacgtaata	acgctaaaag	ttttagatgt	gctttactaa	3540
gtcatcgcga	tggagcaaaa	gtacatttag	gtacacggcc	tacagaaaaa	cagtatgaaa	3600
ctctcgaaaa	tcaattagcc	tttttatgcc	aacaagggtt	ttcactagag	aatgcattat	3660
atgcactcag	cgctgtgggg	cattttactt	taggttgctg	attggaagat	caagagcatc	3720
aagtcgctaa	agaagaaaagg	gaaacaccta	ctactgatag	tatgccgcca	ttattacgac	3780
aagctatcga	attatttgat	caccaagggtg	cagagccagc	cttcttattc	ggccttgaat	3840
tgatcatatg	cggattagaa	aaacaactta	aatgtgaaag	tgggtccgcg	tacagccgcg	3900
cgcgtacgaa	aaacaattac	gggtctacca	tcgagggcct	gctcgatctc	ccggacgacg	3960
acgcccccca	agaggcgggg	ctggcggtct	cgcgcctgtc	ctttctcccc	gcggggacaca	4020
cgcgcagact	ctcgacggcc	cccccgaccg	atgtcagcct	gggggacgag	ctccacttag	4080
acggcgaggga	cgtggcgatg	gcgcattgcc	acgcgctaga	cgatttcgat	ctggacatgt	4140
tgggggacgg	ggattccccg	ggtccgggat	ttacccccca	cgactccgcc	ccctacggcg	4200
ctctggatat	ggccgacttc	gagtttgagc	agatgtttac	cgatgccctt	ggaattgacg	4260
agtcagggtg	gtaggggggc	cgaggatctc	gagcagctcg	aattttcccc	atcggttcaaa	4320
caattggcaa	taagtttct	taagattgaa	tcctgttgcc	ggtcttgcca	tgattatcat	4380
ataatttctg	ttgaattacg	ttaagcatgt	aataattaac	atgtaatgca	tgacgttatt	4440
tatgagatgg	gtttttatga	ttagagtccc	gcaattatac	atttaatacg	cgatagaaaa	4500
caaaatatag	cgcgcaaact	aggataaatt	atcgcgcgcg	gtgtcatcta	tgttactaga	4560
tcgggaattc	cttaattaag	aattcgagct	cggtagccgag	ctcgactttc	acttttctct	4620
atcactgata	gggagtggta	aactcgactt	tcattttctc	tatcactgat	agggagtgggt	4680
aaactcgact	ttcacttttc	tctatcactg	atagggagtg	gtaaaactcg	ctttcacttt	4740
tctctatcac	ggatagggag	tggtaaaactc	gactttcact	tttctctatc	actgataggg	4800
agtggtaaac	tcgactttca	cttttctcta	tcactgatag	ggagtggtaa	actcgacttt	4860
cacttttctc	tatcactgat	agggagtgggt	aaactcgaga	tagagtgate	tagtcttcgc	4920
aagacccttt	acgtatataa	ggcctttcta	gacatttgct	cgagcccggg	gatccatag	4980
gccatggcac	aagggttgtg	gaccgggggtg	gatacgtaag	tttctgcttc	tacctttgat	5040
atatatataa	taattatcat	taattagtag	taatataata	tttcaaatat	ttttttcaaa	5100
ataaaaagaat	gtagtatata	gcaattgctt	ttctgtagtt	tataagtgtg	tatattttaa	5160
tttataactt	ttctaataata	tgacaaaat	ttgttgatgt	gcaggtaacg	gggtgcttac	5220
gaccgtcgrc	ntndagtcgc	gcgagcgcca	gaattcgagc	gcagcaagcc	cagcgacaca	5280
gcgtagcgcc	aacgaagaca	aggcgggccga	ccttcagcgc	gaagtcgagc	gcgacggggg	5340
ccggttcagg	ttcgtcgggc	atttcagcga	agcgccgggc	acgtcggcgt	tcgggacggc	5400
ggagcgcccc	gagttcgaa	gcacccctgaa	cgaatgcgcg	gccggggcgc	tcaacatgat	5460
cattgtctat	gacgtgtcgc	gcttctcgcg	cctgaagggtc	atggacgcga	ttccgattgt	5520
ctcggaattg	ctcgccctgg	gcgtgacgat	tgtttccact	caggaaggcg	tcttccggca	5580
gggaaacgtc	atggacctga	ttcacctgat	tatgcggctc	gacgcgtcgc	acaaagaatc	5640
ttcgtggaag	tcggcggaaga	ttctcgacac	gaagaacctt	cagcgcgaa	tggggcgggt	5700
cgtcggcggg	aaggcgccct	acggcttcga	gcttgtttcg	gagacgaagg	agatcacgcg	5760
caacggcgca	atggccaatg	tgcctcatcaa	caagcttgccg	cactcgacca	ctccccttac	5820

eggacccttc	gagttcgagc	ccgacjtaat	ccggtggtgg	tggcgtgaga	tcaagacgca	5880
caaacacctt	cccttcaagc	cgggcagtea	agccgccatt	caccggggca	gcacacggg	5940
gctttgtaag	cgcattggacg	ctgacgccgt	gccgacccgg	ggcgagacga	ttgggaagaa	6000
gaccgcttca	agcgcttggg	acccggcaac	cggtatgcga	atccttcggg	accccgctat	6060
tgcgggcttc	gccgctgagg	tgatctacaa	gaagaagccg	gacggcacgc	cgaccacgaa	6120
gattgagggt	taccgcattc	agcgcgaccc	gatcacgctc	cggccggtcg	agcttgattg	6180
cggaccgatc	atcgagcccg	ctgagtggta	tgagcttcag	gcgtggttgg	acggcagggg	6240
gcgcggcaag	gggctttccc	gggggcaagc	cattctgtcc	gccatggaca	agctgtactg	6300
cgagtgtggc	gccgtcatga	cttcgaagcg	cggggaagaa	tcgatcaagg	actcttaccg	6360
ctgccgtcgc	cggaagggtg	tcgacccgtc	cgcacctggg	cagcacgaag	gcacgtgcaa	6420
cgtcagcatg	ggggcactcg	acaagttcgt	tgcggaaacg	atcttcaaca	agatcaggca	6480
cgccgaaggc	gacgaagaga	cgttggcgct	tctgtgggaa	gccgcccgac	gcttcggcaa	6540
gctcactgag	gcgcctgaga	agagcggcga	acgggcgaac	cttgttgccg	agcgcgccga	6600
cgccctgaac	gcccttgaag	agctgtacga	agaccgcgcg	gcaggcgctg	acgacggacc	6660
cgttggcaag	aagcaacttc	ggaagcaaca	ggcagcgctg	acgctccggc	agcaaggggc	6720
ggaagagcgg	cttgccgaac	ttgaagccgc	cgaagccccg	aagcttcccc	ttgaccaatg	6780
gttccccgaa	gacgcgcgacg	ctgacccgac	cggccctaag	tcgtggtggg	ggcgcgcgtc	6840
agtagacgac	aagcgcggtg	tcgtcgggct	cttcgtagac	aagatcggtg	tcacgaagtc	6900
gactacgggc	agggggcagg	gaacgcccat	cgagaagcgc	gcttcgatca	cgtgggcgaa	6960
gcgcgccgac	gacgacgacg	aagacgacgc	ccaggacggc	acggaagacg	tagcgcgcta	7020
gctgcagctc	gacgcattgc	ctgctttaat	gagatatgcg	agacgcctat	gatcgcatga	7080
tatttgcttt	caattctggt	gtgcacgttg	taaaaaacct	gagcatgtgt	agctcagatc	7140
cttaccgcgc	gtttcggttc	attctaatga	atatatcacc	cgttactatc	gtatttttat	7200
gaataaatatt	ctccgttcaa	tttactgatt	gtccaaagctt	cctgcaggaa	gctttgggcg	7260
gatectctag	attcgacggg	atcgataagc	tcgcggatcc	ctgaaagcga	cgttggatgt	7320
taacatctac	aaattgcctt	ttcttatcga	ccatgtacgt	aagcgcttac	gtttttgggtg	7380
gacccttgag	gaaactggta	gctgttgtgg	gcctgtgggtc	tcaagatgga	tcattaatatt	7440
ccaccttcac	ctacgatggg	gggcacgcga	ccggtgagta	atattgtacg	gctaagagcg	7500
aatttggcct	gtaggatccc	tgaaagcgac	gttggatggt	aacatctaca	aattgcccctt	7560
tcttatcgac	catgtacgta	agcgcttacg	tttttggtgg	acccttgagg	aaactggtag	7620
ctgttgtggg	cctgtggtct	caagatggat	cattaatttc	caccttcacc	tacgatgggg	7680
ggcatcgac	cgggtgagtaa	tattgtacgg	ctaagagcga	atttggcctg	taggatccct	7740
gaaagcgacg	ttggatgtta	acatctacaa	attgcctttt	cttatcgacc	atgtacgtaa	7800
gcgcttacgt	ttttgggtga	cccttgagga	aactggtagc	tgttgtgggc	ctgtggtctc	7860
aagatggatc	attaatttcc	accttcacct	acgatggggg	gcacgcgacc	ggtgagtaat	7920
attgtacggc	taagagcgaa	tttggcctgt	aggatccgcg	agctgggtcaa	tccattgctt	7980
tttgaagcag	ctcaacattg	atctctttct	cgatcgaggg	agatttttca	aatcagtgcg	8040
caagacgtga	cgtaaagtac	cgagtcagtt	tttatttttc	tactaatattg	gtcgttttat	8100
tcggcggtga	ggacatggca	accgggcctg	aatttcgcgg	gtattctggt	tctattccaa	8160
ctttttcttg	atccgcagcc	attaacgact	tttgaataga	tacgctgaca	cgccaagcct	8220
cgetagtcaa	aagtgtacca	aacaacgctt	tacagcaaga	acggaatgcg	cgtgacgctc	8280
gcgggtgacg	catttcgcct	tttcagaaat	ggataaatag	ccttgcttcc	tatttatctc	8340
tcccaaatta	ccaatacatt	acactagcat	ctgaatttca	taaccaatct	cgatacacca	8400
aatcgaagat	ccaaggagat	ataacaatga	agactaatct	ttttctcttt	ctcatctttt	8460
cacttctcct	atcagrcntn	dttatccctg	gccgaattgt	acgtaagttt	ctgcttctac	8520
ctttgatata	tatataataa	ttatcattaa	ttagttagta	tataatattt	caaataattt	8580
tttcaaaata	aaagaatgta	gtatatagca	attgcttttc	tgtagtttat	aagtgtgtat	8640
atttttaattt	ataacttttc	taatatatga	ccaaaatttg	ttgatgtgca	ggtacaattc	8700
agtaaaggag	aagaactttt	cactggagtt	gtcccaattc	ttgttgaatt	agatgggtgat	8760
gttaatgggc	acaaattttc	tgtcagtggg	gagggtgaag	gtgatgcaac	atacggaana	8820
cttaccctta	aattttattg	cactactgga	aaactacctg	ttccatggcc	aacacttgct	8880
actactttca	cttatgggtg	tcaatgcttt	tcaagatacc	cagatcatat	gaagcggcac	8940
gaacttctca	agagcgcctat	gcctgagggg	tacgtgcagg	agaggacctat	ctctttcaag	9000
gacgacggga	actacaagac	acgtgctgaa	gtcaagtttg	agggagacac	cctcgctcaac	9060
aggatcgagc	ttaagggaat	cgattttcaag	gaggacggaa	acatccctcg	ccacaagttg	9120
gaatacaact	acaactccca	caacgtatac	atcacggcag	acaaacaaaa	gaatggaatc	9180
aaagctaaact	tcaaaattag	acacaacatt	gaagatggaa	gcgttcaact	agcagacctt	9240
tatcaacaaa	atactccaat	tggcgatggc	cctgtccttt	taccagacaa	ccattacctg	9300

```

tccacacaat ctgcccttcc gaaagatccc aacgaaaaga gagaccacat ggctcttctt 9360
gagtttgtaa cagctgctgg gattacacat ggcattggatg aactatacaa acatgatgag 9420
ctttaagagc tcgaatttcc ccgatcggtc aaacatttgg caataaagtt tcttaagatt 9480
gaatcctggt gccggtcttg ccatgattat catataattt ctggtgaatt acgttaagca 9540
tgtaataatt aacatgtaat gcatgacgtt atttatgaga tgggttttta tgattagagt 9600
cccgcaatta tacatttaat acgcataga aaacaaaata tagcgcgcaa actaggataa 9660
attatcgcgc gccgtgtcat ctatgttact agatcgggaa ttccgcgatcg ccccaactgg 9720
ggtaaccttt gagttctctc agttggggga gatctgattg tcgtttcccg ccttcagttt 9780
aaactatcag tgtttgacag gatataattg cgggtaaacc taagagaaaa gagcgtttat 9840
tagaataatc ggatatttaa aagggcgtga aaagggttat ccgttcgtcc atttgtatgt 9900
c

```

```

<210> 12
<211> 3035
<212> DNA
<213> Arabidopsis thaliana

```

```

<400> 12
tgtaaatgat agggattgaa acatcatcct atcgttgacc aaaaatttca ctgcgtgcta 60
tataaaatac tataatgttt accctttaac tgatgaaat gtaaagagac aaggcagcac 120
cgttttatcat cagaccagtt tcgagagtgt tcctgcatcg ttgggctccc tcctcaattt 180
tgtctacgtg attatatatc atatcgtcta caaacaaaat aaatacaatt ctatcatatg 240
aatatgtgat catcgatgat ccatcaatat atgttttcga ggtgacgtat atagtatatt 300
tcgtagaga cggcgaagaa catgatatct ctgcatgcct ccaatcaaat ctttacactt 360
catccttctt cgttacttgt tcagttgttc ctttctaate ccgacaaccc ttaatttgta 420
tttctatatt agatcgaaat atctcatttg tgataaataa aataaaaaaa atcaaagaaa 480
gctatagaga agctgcgtgc atgcatgggt tggcgatggt tggcttgta tgtttggctt 540
gttatgtggc attatctgta tgtatattac cctaaatcac atctacgaca ttccctcga 600
tcttcaaaat atgccagcaa tcttcatggt tcctcatatc tcttaacatt ggaaaatgtc 660
ttttgacctc ttttgatgta ttttaaatca cttcgagctc atctatatta caaatcatte 720
atgggtgaatt attgtccagc caatagaata gaaatctgaa tataatgtgt accacatctt 780
ttatgtaatt tatacgatat tcttttccct gagaatgatc aaataacaac atgcatgaat 840
tgctgcaga aaacytcaga ttgatcagtt atcactacaa ttatcaatta actagtaaat 900
agtatcaaaa tgtacgtagt gccatctat agctagctaa ggaggactcc ggatgtagag 960
aaaagctaaa atgtgacttg ctagagtgtt atttatattg attttctaaa ctaatagtat 1020
cttttttaca gataataatt tccggaaaaa ctatttagatg tatagatata acaataagca 1080
tcgataccaa ccttttactt ccaaaaaaaa aatgccaaaga tgagataatt 1140
ttgtcaattt caattagtgg gaaaataaca attgtcgtgt tatttttgaa ccaacgcata 1200
tcagtgaatg atttcccagt tcttaagatt ttaggacata ctttcccagt aacatctaatt 1260
ccgtttgggc ataaacaaga caattttgtg ttatgtacat ttcttagtga tgtgtgttga 1320
aaagatatga atcaatgagg tccgacatat tttgtcaata cgttagtgggt gtttcaaaat 1380
aaatttttag tatatatatt aaaataagac caaaggatag gctttagtgg tgtttcaggt 1440
atagttttta taatcaattc aaaataagtc gaaaggatat gtaagatagg cgttatattc 1500
acgtggatca ttatcaacca tgtcaaaaac gcatttcaac tcctagatgt gttgttagtt 1560
atatatgttc caaatggaat cgacccaaca gaaaaagaga aaaaaacgta aaaggttatg 1620
cgattccagg gacgtctcat atatatatat attccgatga aatataaata taattatcgt 1680
ggtctgtgac aataaatatg gaaatagatg tggaaatcat gatcatgtga agaagaagaa 1740
gaacacgtgc agatgaactg caaatgataa taatgtgcat gtccatgagt tatgtactta 1800
tgtgtattat ctacgtgttt tccatacata catatataaa tcttatatta ctttatggtt 1860
ttgtcgtaaa agttacgtag catcaataat tgtgatcgtg tgccataaac agacaactac 1920
ttgtaacggg ataaggcttg gctctcatga taaaatgata accctttttt tcgtcggaga 1980
cagacaaacg cataaatcac taattctaaa ccgagatgat tgtcgatttg tttgccatat 2040
gcataactag aatcttcagt taatattaat ttttgggtgt ttccgatcgaa taaaaaaaaa 2100
taaacattgc aatatttcga aatttgcgtt ctttcttttt ataacactag caagtgaag 2160
gctgagagcc aagtggaaac ttaaaaagaca acattagata tatattatat attgctaaat 2220
ctgtattatt tctttttaac atacgcaact tttgattgga aatcgtaagt cgaaggaaag 2280
gcctcgattt atgacgtacg ctctcgtgcca aacaattcct ctttagttga ggccggggaa 2340

```



```

gacgagtttg ttgttagtga gcgatgccat ggcaccaatg aactcccaaa ggccatatgt 2400
tctgttaaag gctatttttag tttttaattt tgttctgath aactcaacca catgttaaatt 2460
cagatatcat gtttaacgat attagttttt aaacaaaatg attatcataa aacgaaattt 2520
atgatgaaac atataataatc tttatcttgt ttaagtatgt aattcttgta tgtttgtata 2580
cgccttgcaa atcaaaaaac tagttgctgt ttttggcatt gtgtttacga aatatttatt 2640
aatattttta attaattaaa taaatgttct tatttctcaa caggaaacaa tatgtatttt 2700
ctttctttat aaaattacaa tgaattattt gttttaagct gtctatttcc aagaaacaaa 2760
acacaaaaat gataaattta taatagtcac ataacctgtc ttacaaaaaa aaaaagaaaa 2820
gcgaaaagaa atgtgacaac agaaaatggt tttgataacc aataagaatc gacaaaaaaa 2880
aaacttactc cacatatact cttctcttca ctcttcagtc ttcactattc agtctcgagt 2940
atttcaccga tctataaata cactctctt ctccaccaa agtatcatat catacaaaa 3000
acataaagcc aaaatataaa cacataagcc tttta 3035

```